CLAIMS:

1. A method of producing a screen-printing stencil having open areas and blocked areas for respectively passage and blocking of a printing medium, the method comprising:

providing a receptor element comprising an optional support base and an image-receiving layer capable of receiving a first chemical agent in areas corresponding to the blocked areas of the stencil to be produced;

applying the first chemical agent to the image-receiving layer of the receptor element in the said corresponding areas;

applying a second, stencil-forming chemical agent to a screen printing screen,

bringing the image-receiving layer of the receptor element into contact with the stencil-forming agent, to allow the first and second chemical agents to react to produce on the screen a stencil-forming layer having areas of lower solubility corresponding to the said blocked areas and areas of higher solubility in areas corresponding to the solid open stencil areas;

removing any remaining unreacted part of the receptor element; and

washing away the second chemical agent in the higher solubility areas, thereby to produce the screen-printing stencil.

2. A method according to claim 1, wherein the first chemical agent is produced *in situ* by reaction between two or more precursor materials, separately applied to the image-receiving layer, prior to contact with the stencil forming agent, at least one of which is applied in the said areas corresponding to the blocked areas of the stencil to be produced.

3. A method according to claim 1 or 2, wherein the image-receiving layer of the receptor element reacts with the first chemical agent to produce lower solubility areas corresponding to the said blocked areas and excess of the first chemical agent remains in said areas to react with the second chemical agent upon contact between the image-receiving layer and the stencil-forming agent, whereby the respective lower solubility areas of the image-receiving layer and of the stencil-forming layer combine with one another and, after the higher solubility areas are washed away, remain to-form the blocked areas of the screen-printing stencil.

4. A method according to claims 1 or 2, wherein the image-receiving layer comprises one or more of the following polymers: methyl hydroxy propyl cellulose, carboxymethyl cellulose, polyvinylpyrrolidone and polyacrylic acids.

5. A method according to any of claims 1 to 3, wherein the image-receiving layer comprises paper.

6. A method according to claim 4, wherein the polymer(s) is/are present in the image-receiving layer in a total amount of 5 to 100 wt % of the image-receiving layer.

7. A method according to claim 6, wherein the image-receiving layer contains one or more of: fillers, binders and plasticisers.

8. A method according to claim 3, wherein the image-receiving layer comprises one or more of the following polymers:

polyvinylalcohol and its derivatives;

gelatin and its derivatives;

carboxylated polymers capable of becoming water soluble on addition of alkali, including carboxylated acrylics, ethylene-acrylic acid and styrene-acrylic acid copolymers;

water-soluble cellulose derivatives, including starch and hydroxy propyl cellulose;

sulphonated polymers;

polyacrylamides;

epoxy resins; and

amino resins, including urea-formaldehyde and melamine-formaldehyde.

9. A method according to claim 8, wherein the image-receiving layer comprises polyvinyl alcohol with a degree of hydrolysis of from 20 to 99.9 mole % and/or a degree of polymerisation of from 100 to 3500.

10. A method according to any preceding claim, wherein the receptor element includes a support base of from 10 to 200μm thickness.

11. A method according to claim 10, wherein the support base comprises polyethylene terephthalate, polyethylene, polycarbonate, polyvinyl chloride, polystyrene or a coated paper.

12. A method according to claim 10 or 11, wherein the image-receiving layer has a thickness of from 0.1 to 50 μm.

13. A method according to any of claims 1 to 9, wherein the receptor element has no support base and the image-receiving layer has a thickness of form 6 to 250 μm.

14. A method according to any preceding claim, wherein the second chemical agent comprises one or more of the following polymers:

polyvinylalcohol and its derivatives;

gelatin and its derivatives;

carboxylated polymers capable of becoming water soluble on addition of alkali, including carboxylated acrylics, ethylene-acrylic acid and styrene-acrylic acid copolymers;

water-soluble cellulose derivatives, including starch and hydroxy propyl cellulose;

sulphonated polymers;

polyacrylamides;

epoxy resins; and

amino resins, including urea-formaldehyde and melamine-formaldehyde.

15. A method according to any preceding claim, wherein the active component(s) of the first chemical agent comprises one or more of:

boron salts, including boric acid, and Group I and Group II metal borates;

aldehydes, e.g. formaldehyde;

dialdehydes, e.g. glyoxal and glutaraldehyde, which may be activated by treatment with mineral acid;

isocyanates and their derivatives, including toluenediisocyanate;

carbodiimides and their derivatives, including pentahydroxy (tetradecanoate) dichromium and its derivates; aziridine and its derivates;

amines;

multifunctional silane compounds, including silicon tetraacetate;

N-methylol compounds, including dimethylolurea and methyloldimethylhydantoin; and

active vinyl compounds, including 1,3,5-triacryloyl-hexahydro-*s*-triazine.

16. A method according to any preceding claim, wherein the active component(s) of the first chemical agent constitutes from 0.5 to 100 wt.% of the first chemical agent.

17. A method according to claim 2, wherein the first

chemical agent precursor applied in the areas corresponding to the blocked areas of the stencil to be produced comprises a reactive dialdehyde and a further first chemical agent precursor is a dilute acid.

18. A method according to claim 17, wherein the reactive aldehyde is water-soluble, for example glyoxal and glutaraldehyde.

19. A method according to claim 17 or 18, wherein the dilute acid is an acid, for example hydrochloric acid or citric acid, which lowers the pH to 4 or less when mixed with the dialdehyde.

20. A method according to any preceding claim, wherein the first chemical agent is applied dropwise to the receptor element.

21. A method according to claim 20, wherein the dropwise application is by an ink-jet printer or an ink-jet plotter.

22. A method according to claim 21, wherein the ink-jet printer or plotter has more than one ejection head.

23. A method according to any of claims 1 to 19, wherein the first chemical agent is supplied to the receptor element by a hand-held delivery device.

24. A method according to any preceding claim, wherein the stencil is further toughened by a post-treatment using extra chemicals, actinic radiation or heat.

25. A method according to claim 24, wherein the requisite components for the further toughening are resident in the original image-receiving layer and/or in the stencil-forming agent.

26. A method according to claim 25, wherein the requisite chemicals are applied image-wise by an application unit integral to the imaging device.

27. A method according to claims 24 to 26, wherein the extra chemicals include an aqueous base, for example, potassium carbonate.

28. A method according to any preceding claim, including a further, reclaim step.

29. A method according to claim 28, wherein the first chemical agent comprises a borate and the reclaim is carried out at a pH of 4 or less.

30. A method according to any preceding claim, wherein the second chemical agent is applied to the screen printing screen from one side thereof after the receptor element has been applied to the other side thereof with its image-receiving layer in contact with the screen, whereby the image-receiving layer is brought onto contact with the second chemical agent.

31. A method according to any of claims 1 to 29, wherein the second chemical agent is applied to the screen printing screen and the receptor element is subsequently brought into contact with the screen to bring the image-receiving layer thereof into contact with the second chemical agent.

32. A method according to any preceding claim, wherein any support base present is removed before washing away the second chemical agent in the higher solubility areas.

33. A method according to any of claims 1 to 31, wherein any support base present is removed by the washing away of the second chemical agent in the higher solubility areas.

34. A pre-filled cartridge for a dropwise application device such as an ink-jet printer or plotter, the cartridge containing one or more of the first chemical agents specified in claim 15, optionally in a suitable liquid solvent or carrier.